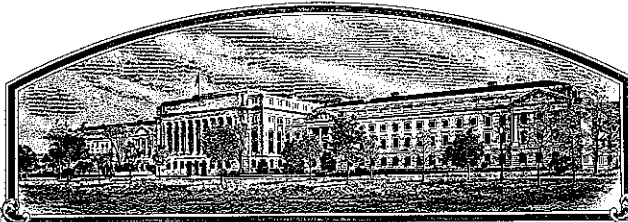


No.

9800050



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Minnesota Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

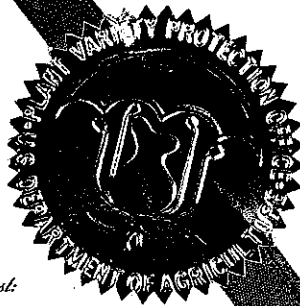
AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE VARIETY (U.S. STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'UM-3'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirty-first day of March, in the year of our Lord two thousand.



Attest:

Ann Marie Ives

Commissioner  
Plant Variety Protection Office

Samuel Hildner

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

# APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) Minnesota Agricultural Experiment Station University of Minnesota		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER M91-455	3. VARIETY NAME Name change M-3 16 March 1999 UM-3' - Fresh
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 220 Coffey Hall 1420 Eckles Avenue St. Paul, MN 55108		5. TELEPHONE (include area code) (612) 625-4211	FOR OFFICIAL USE ONLY PVPO NUMBER 9800050 DATE 12/20/97
		6. FAX (include area code) (612) 625-0286	
7. GENUS AND SPECIES NAME Glycine max	8. FAMILY NAME (Botanical) Leguminosae		FILING AND EXAMINATION FEE: \$ 2450.00 DATE 12/29/97
9. CROP KIND NAME (Common name) Soybean			
10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name) University			CERTIFICATION FEE: \$ 300
11. IF INCORPORATED, GIVE STATE OF INCORPORATION		12. DATE OF INCORPORATION 1/15/99	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS J.H. Orf Department of Agronomy and Plant Genetics, 411 Borlaug Hall University of Minnesota 1991 Upper Buford Circle St. Paul, MN 55108			14. TELEPHONE (include area code) (612) 625-8275
			15. FAX (include area code) (612) 625-1268
16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)			
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of the Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Applicant's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to PVPO)			
17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES (If "yes," answer items 18 and 19 below) <input type="checkbox"/> NO (If "no," go to item 20)			
18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED	
20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> YES (If "yes," give names of countries and dates) <input checked="" type="checkbox"/> NO			
21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.  The undersigned applicant(s) is(are) the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.  Applicant(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF APPLICANT (Owner(s)) Marilyn R. DeLong		SIGNATURE OF APPLICANT (Owner(s))	
NAME (Please print or type) Marilyn R. DeLong		NAME (Please print or type)	
CAPACITY OR TITLE Deputy Director	DATE 12-23-97	CAPACITY OR TITLE	DATE

## Exhibit A

### Origin and Breeding History of UM-3 Soybean

'UM-3' soybean traces to the  $F_5$  progeny of an  $F_4$  plant harvested from a population that had been advanced by a modified single seed descent procedure from the cross Natto x M87-926. The line M87-926 has the pedigree Chico x PI 437296. Bulk seed of the  $F_5$  row was designated UM-3 and was used for yield testing the use of  $F_6$  (1993). Subsequent tests of strain in UM-3 were conducted in North Dakota and Minnesota in the  $F_7$  (1994) and  $F_8$  (1995). In the  $F_8$  generation 50 typical plants were harvested individually to initiate purification for observable traits including seed size. In the  $F_9$  (1996) UM-3 was entered in the maturity group 0 Regional Soybean Test. In 1996 twenty-five rows were bulked to provide breeder's seed. In 1996 a small increase of breeder's seed was produced. In 1997 Foundation seed was being produced by the Minnesota Foundation Seed Organization. A proposal was made by Blue Horizon Company to be the exclusive marketer of UM-3 and it was accepted on August 1, 1997. No variants were noted in the seed multiplication process of UM-3 over three generations. This variety is uniform and stable and meets certification standards.

Statement of Distinctiveness

M-3 soybean is most similar to Minnatto.

M-3 has brown (tawny) pubescence while Minnatto has gray pubescence. M-3 has tan pod color while Minnatto has brown pod color. Seed of M-3 and Minnatto are both yellow with yellow hila.

## Statement of Distinctiveness

M-3 soybean is most similar to Minnatto. M-3 is approximately 9 days earlier in maturity than Minnatto. The yield of M-3 is about 16 greater than Minnatto. M-3 lodges slightly more than Minnatto, is about 5 inches shorter and has better seed quality. Seed of M-3 is about 1.8 grams per 100 seeds (about 20%) smaller in size than Minnatto. M-3 has about 3% less protein and 1.4% greater oil than Minnatto. M-3 and Minnatto both have white flowers. M-3 has brown (tawny) pubescence while Minnatto has gray pubescence. M-3 has tan pod color while Minnatto has brown pod color. Seed of M-3 and Minnatto are both yellow with yellow hila.

Data comparing M-3 and Minnatto taken from Minnesota Tests 1995-96.

Variety	Date mature	Yield bu/a	Height inches	Lodging score	Seed quality score	Seed size g/100	Protein %	Oil %
M-3	9/17	41.9	32	2.0	1.5	7.7	33.6	18.1
Minnatto	9/26	36.0	37	1.6	2.1	9.5	36.6	16.7

PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY  
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) Minnesota Agricultural Experiment Station University of Minnesota	TEMPORARY DESIGNATION M91-455	VARIETY NAME M-3 M3
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 220 Coffey Hall 1420 Eckles Avenue St. Paul, MN 55108	FOR OFFICIAL USE ONLY PVPO NUMBER 9800050	

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,  ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)  
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)  
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow      2 = Green      3 = Brown      4 = Black      5 = Other (Specify) \_\_\_\_\_

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')      2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

1 = Buff      2 = Yellow      3 = Brown      4 = Gray      5 = Imperfect Black      6 = Black      7 = Other (Specify) \_\_\_\_\_

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow      2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low      2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1<sup>a</sup>)      2 = Type B (SP1<sup>b</sup>)

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')      2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')  
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')  
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate      2 = Oval      3 = Ovate      4 = Other (Specify) \_\_\_\_\_

## 11. LEAFLET SIZE:

☐ 11 = Small ('Amsoy 71'; 'A5312')  
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

9800050

## 12. LEAF COLOR:

☐ 21 = Light Green ('Weber'; 'York')  
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

## ★ 13. FLOWER COLOR:

☐ 1

1 = White

2 = Purple

3 = White with purple throat

## ★ 14. POD COLOR:

☐ 1

1 = Tan

2 = Brown

3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

☐ 2

1 = Gray

2 = Brown (Tawny)

## 16. PLANT TYPES:

☐ 11 = Slender ('Essex'; 'Amsoy 71')  
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

## ★ 17. PLANT HABIT:

☐ 3

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

## ★ 18. MATURITY GROUP:

☐ 0 ☐ 31 = 000  
9 = VI

2 = 00

10 = VII

3 = 0

11 = VIII

4 = I

12 = IX

5 = II

13 = X

6 = III

7 = IV

8 = V

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

★

☐ 0Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)

★

☐ 0Bacterial Blight (*Pseudomonas glycinea*)

★

☐ 0Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

★

☐ 0Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojina*)

★

☐ 0

Race 1

☐

Race 2

☐

Race 3

☐

Race 4

☐

Race 5

☐

Other (Specify)

☐ 0Target Spot (*Corynespora cassicola*)☐ 0Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ 0Powdery Mildew (*Microsphaera diffusa*)

★

☐ 1Brown Stem Rot (*Cephalosporium gregatum*)☐ 0Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

- ★ ☐ 0 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☐ 0 Purple Seed Stain (*Cercospora kikuchii*)
- ☐ 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☐ 1 Race 1 ☐ Race 2 ☐ Race 3 ☐ Race 4 ☐ Race 5 ☐ Race 6 ☐ Race 7
- ☐ Race 8 ☐ Race 9 ☐ Other (Specify) \_\_\_\_\_

VIRAL DISEASES:

- ☐ 0 Bud Blight (Tobacco Ringspot Virus)
- ☐ 0 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☐ 0 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ 0 Pod Mottle (Bean Pod Mottle Virus)
- ★ ☐ 0 Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☐ 1 Race 1 ☐ Race 2 ☐ Race 3 ☐ Race 4 ☐ Other (Specify) \_\_\_\_\_
- ☐ 0 Lance Nematode (*Hoplolaimus Colombus*)
- ★ ☐ 0 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☐ 0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ 0 Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- ☐ 0 Reniform Nematode (*Rotylenchulus reniformis*)
- ☐ OTHER DISEASE NOT ON FORM (Specify): \_\_\_\_\_

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☐ 1 Iron Chlorosis on Calcareous Soil
- ☐ Other (Specify) \_\_\_\_\_

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ 0 Mexican Bean Beetle (*Epilachna varivestis*)
- ☐ 0 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ Other (Specify) \_\_\_\_\_

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	Minnatto	Seed Coat Luster	Lambert
Leaf Shape	Minnatto	Seed Size	Minnatto
Leaf Color	Minnatto	Seed Shape	Minnatto
Leaf Size	Minnatto	Seedling Pigmentation	Minnatto

## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data Uniform Regional Tests 0

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/POD
				CM Width	CM Length	% Protein	% Oil		
M-3 Submitted	113	1.9	61	6.8	11.0	43.6	19.9	7.8	2.3
Agassiz Name of Similar Variety	113	1.4	76	7.6	11.9	43.5	20.5	14.4	2.4

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A<sub>2</sub> in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

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U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

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EXHIBIT E  
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) Minnesota Agricultural Experiment Station University of Minnesota		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER  M91-455	3. VARIETY NAME  M-3
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 220 Coffey Hall 1420 Eckles Avenue St. Paul, MN 55108		5. TELEPHONE (include area code) 612-625-4211	6. FAX (include area code) 612-625-0286
		7. PVPO NUMBER  9800050	
8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain.  <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
9. Is the applicant (individual or company) a U.S. national or U.S. based company? If no, give name of country <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
10. Is the applicant the original owner? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If no, please answer the following:			
a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)? <input type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country _____			
b. If original rights to variety were owned by a company, is the original owner(s) a U.S. based company? <input type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country _____			
11. Additional explanation on ownership (If needed, use reverse for extra space): The University of Minnesota is the employer of the breeder who developed M-3.			

## PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-5881 (voice) or (202) 720-7808 (TDD). To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.